**Using CONCEPT CARDS in Middle Grades Mathematics Class**

Points to consider:

* With younger students, take time in class to construct and work with the cards.
* Let them work on them in pairs/groups. Whenever a new task is presented, students accept it more readily when they can work with their peers – make sure they get to experience different partners and make sure they experience different tasks with the same vocabulary.
* Have them take them out periodically and add more facts or new sentences to them.
* Be sure they understand that they are continually addressing each concept (for depth) throughout the study of mathematics.
* Initiate activities that FORCE connections and relationships – students don’t often readily see relationships by themselves so keep asking the types of questions that make them put ideas together.  Students will improve in making and using the cards through in-class academic vocabulary focus time.
* Incorporate other activities with the words as well as the CONCEPT CARDS so students will realize how much they have learned.

Here are some ideas you might try with concept cards:

1. Address the sentences on the back of the card as a matter of course on a daily basis:

A.  Ask them to read out loud their sentences on the back and discuss those – are the relationships correct, is the concept actually addressed, is there another way to say the same thing, is there another statement that comments on a different aspect of the relationship between those two things.  Keep going until obvious relationships have been identified.

B.  Tell them to turn to page\_\_and find one more way the term is related to something.

C.  Make true-false statements with concepts from two or more cards on your quizzes – then after the quiz, the students can take time to write the true sentences on the backs of their cards or correct the false statements and add them to the appropriate cards. Tell them to make up true-false sentences with concepts from different cards to be used on the next quiz.  
D.  Tell them to use the index in the book for pages on which that term is addressed and see if they can find a connection or a relationship on that page or in the glossary.

E.  You can pull out two cards (seemingly at random) and say the words out loud, have small groups come up with a possible relationship between the terms, then let the groups  share with the class.

F.   If they aren’t making connections to the real world, take time to focus on the word problems in the current chapter:  for what occupation, task, or experience is knowing about\_\_\_\_useful?  Or for this problem, which concepts are actually addressed?

G.  Ask “When have you ever uses a skill associated with the concept?  Can you think of a time when a \_\_\_(name a profession) might need to know about\_\_\_?

H.  Mention in class when an appropriate connection or relationship has been identified:  Say this is a  CCSO – Concept Card Statement Opportunity – get it while you can! Or  - write it while you remember it!

I.  Peer review of cards:  does the card contain a complete diagram and a complete list of facts or could something else be added?

J.   If three of you got together to produce the best concept card for the idea\_\_\_\_, what would you all agree needs to go on the card?

K.  Give them a set of sentences for a card and ask them to choose the sentences that belong on the card. They should say why they agree or disagree with that sentence before they do (don’t) write it on their cards.

L. Have Johnny or Susie or the pair become the expert(s) for the card with given concept – let them take charge of a certain card for the week and when the word is mentioned, they are in charge of wording the relationship, the fact, the connection to add to the expert card.  Have another pair be in charge of a different card for the week, etc. until each pair has been assigned a card.  Tehn make sure you use those concepts, terms, etc, in the discussions/problem solving/skills for the week.

1. Incentives:
2. Let them take a pop quiz with cards out but not with notes or textbooks open.
3. CARD QUIZ: Tell them which card to pull for #1 and ask them to put their diagram for that card on the blank by #1 and write  two facts from that card in the blank on the quiz for number 2, then tell them to pull a different concept card for #3 and tell them to choose one of their meaningful sentences from that card to put in the blank by #e; then tell them for #4, they must find a third card in their stack and write a sentence that can contain the two words you already had them pull and the third word that they choose.
4. Star cards: put exemplary cards on a bulletin board – BOARD CARDS get an extra credit point coupon for a quiz;
5. After you look over the cards at test time – award the person with the best card stack a coupon for points on the next test;
6. Take up just one concept card and award the person with the largest number of **meaningful**/**true/correct** sentences on the back of that card a coupon – then address another concept a few days later again the same way.
7. Card sorts:
8. Tell them to look through their stack and find two cards that are connected..then, put a sentence on the back of both of them about the connection (ex. slope, perpendicular lines:  The slopes of two perpendicular lines have a product of -1.)
9. Pull out all cards from your stack that deal with a process ( Ex. Process: simplifying expressions: CARDS to pull: exponent rules, combining like terms, reducing fractions, using algebraic properties – then write on the back of all cards an example of when the concept is used in simplifying an expression.)
10. Put a rectangle the size of the cards on a sheet of paper and title the rectangle.  Tell them to stack cards in the rectangle with which you can make a meaningful sentence with that given rectangle title – then write the sentences that you believe are your best connections.
11. Tell them to find a card from the first chapter (unit) and a card from the second chapter (unit) that “speak” to each other – If the concept cards could talk to each other, could they find something they have in common?  Do they both relate to the strand of measurement; are they both used with the process of problem solving; are they both related to comparing two data sets, are they both parts of a polygon; are they opposites of each other; is one a subset of the other; are they synonyms;  etc.  Keep doing this throughout the year so they can keep reminding themselves what the concepts mean, how they are applied, when they are useful, etc., and make more relationships.

Attention to academic vocabulary requires practice and will get easier; you will see the benefits in learning retention and their ability to see and communicate relationships.